

CLAIMS

1. A hydraulic drive system provided with a main hydraulic pump, a first hydraulic cylinder and second hydraulic cylinder driven by pressure oil delivered from said main hydraulic pump, a first directional control valve for controlling a flow of pressure oil to be fed from said main hydraulic pump to said first hydraulic cylinder, a second directional control valve for controlling a flow of pressure oil to be fed from said main hydraulic pump to said second hydraulic cylinder, a first control device for selectively controlling said first directional control valve, and a second control device for selectively controlling said second directional control valve, wherein:

said hydraulic drive system is provided with a communication control means for communicating a rod chamber of said first hydraulic cylinder and a bottom chamber of said second hydraulic cylinder with each other when a stroke of said second control device has increased to at least a predetermined amount.

2. A hydraulic drive system according to claim 1, wherein said communication control means comprises a communication line capable of communicating said rod chamber of said first hydraulic cylinder and said bottom chamber of said second hydraulic cylinder with each other, a check valve arranged on said communication line to prevent a flow of pressure oil from said bottom chamber of said second hydraulic cylinder toward said rod chamber of said first hydraulic cylinder, and a selector

valve for feeding pressure oil in said rod chamber of said first hydraulic cylinder to said bottom chamber of said second hydraulic cylinder via said communication line.

3. A hydraulic drive system according to claim 2, wherein
5 said selector valve includes a variable restrictor.

4. A hydraulic drive system according to claim 2, further comprising a branch line connected at an end thereof to a main line, which connects said first directional control valve and said rod chamber of said first hydraulic cylinder with each other,
10 and at an opposite end thereof to said selector valve.

5. A hydraulic drive system according to claim 2, further comprising a stroke detector for detecting a stroke of said second control device and outputting an electrical signal, and a controller for outputting, responsive to the signal outputted
15 from said stroke detector, a control signal to selectively control said selector valve.

6. A hydraulic drive system according to claim 5, wherein said controller includes a function generator for outputting a value which becomes gradually greater as said stroke of said
20 second control device increases.

7. A hydraulic drive system according to claim 5, wherein said selector valve is a pilot-controlled selector valve, and said hydraulic drive system is provided with an electric-hydraulic converter for outputting a control pressure
25 corresponding to the control signal outputted from said

controller and a control line communicating said electric-hydraulic converter and said pilot-controlled selector valve with each other.

8. A hydraulic drive system according to claim 1, wherein
5 said first hydraulic cylinder and second hydraulic cylinder
comprise a boom cylinder and arm cylinder, respectively, said
first directional control valve and second directional control
valve comprise a center-bypass-type, directional control valve
for a boom and directional control valve for an arm, respectively,
10 and said first control device and second control device comprise
a boom control device and arm control device, respectively.